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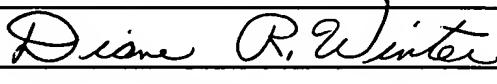
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Patent

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application:
MARK N. HEFLIN
JAMES B. STEWART
SAMUEL L. KAESEMEYER
Serial No. 10/715,243
Filed: 11/18/2003
For: NON-PYROTECHNIC
REMOTE-CONTROLLED
PARACHUTE JETTISON DEVICE

Art Unit No. 3644
Examiner: Dinh, Tien Quang
Confirmation No. 4994

AMENDED APPEAL BRIEF

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

On August 31, 2005, Appellants appealed to the Board of Patent Appeals and Interferences from the last decision of the Examiner. On October 11, 2005, Appellants filed their appeal brief. On December 27, 2005, a Notification of Non-Compliant Brief was mailed to the Appellants. Appellants have amended their appeal brief to meet the requirements of the Notification of Non-Compliant Brief. What follows is Appellants' amended appeal brief.

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1. *Real Party in Interest*

The real party in interest is the Government of the United States, as represented by the Secretary of the Army. Application for recordation in the United States Patent and Trademark Office of the appellants' assignments of title to the real party in interest was made on March 5, 2004.

2. *Related Appeals and Interferences*

None

3 *Status of Claims*

Claims 2-5, 14 and 15 are allowed. Claims 16-20 were withdrawn. Claims 1 and 6-13 are on appeal.

4. *Status of Amendments*

The amendment filed after final rejection amending claim 2 was entered by the Examiner.

5. *Summary of Claimed Subject Matter*

The invention defined in independent claim 1 is directed to a **device** (see page 3, lines 9-23, and page 4, lines 1-14, of the specification, and reference numeral 23 of FIGS. 1-4) for severing **an extraction line** (see page 3, lines 9-11, of the specification, and reference numeral 25 of FIG. 1) connected between **a cargo load** (see page 3, lines 9-11, of the specification, and reference numeral 17 of FIG. 1) and **an extraction parachute** (see page 3, lines 9-11, of the specification, and reference numeral 21 of FIG. 1) when the cargo load fails to eject from an **aircraft** (see page 3, lines 3-5, of the specification, and reference numeral 11 of FIG. 1).

The device comprises **a cutter** (see page 3, lines 14-15, of the specification, and reference numeral 27 of FIGS. 2-4) spaced from and spring-biased in the direction of the extraction line, and **a housing** (see page 3, line 15, and page 4, lines 1-8, of the specification, and reference numerals 39-69 of FIGS. 2-4) for the cutter. In addition, the device includes **means for mechanically restricting the cutter from engaging and severing the extraction line** (see page 3, lines 15-16, and 18-20, of the specification, and reference numeral 31 of FIGS. 2-3), and **means responsive to a radio signal from a transmitter on the aircraft for disabling the restricting means so that the cutter is released and severs the extraction line** (see page 3, lines 17-18, and 20-23, of the specification, and reference numerals 33-37 of FIGS. 2-4). The structure described in the specification as

corresponding to the **means for mechanically restricting the cutter from engaging and severing the extraction line** is the **trip lever** (see page 3 of the specification, and reference numeral 31 of FIGS. 2 and 3). The structure described in the specification as corresponding to the **means responsive to a radio signal from a transmitter on the aircraft for disabling the restricting means so that the cutter is released and severs the extraction line** is the combination of the **solenoid**, (see page 3, line 22 of the specification, and reference numeral 33 of FIGS. 2-4), the **radio receiver**, (see page 3, lines 22-23 of the specification, and reference numeral 35 of FIGS. 2 and 3), and **the pair of batteries** (see page 3, line 23, of the specification, and reference numeral 37 of FIGS. 2 and 3).

Dependent claims 6-13 further define **the housing** of the device. The dependent claims are not argued separately.

6. *Grounds of Rejection to be Reviewed on Appeal*

Whether the rejection of claims 1 and 6-13 under 35 U.S.C. § 103(a) as obvious over Underwood (U.S. Pat. 5,816,535) in view of Kenzie (U.S. Pat. 4,513,931) and Tillman (U.S. Pat. 6,578,885) is proper.

7. *Argument*

a. *Rejection under 35 U.S.C. § 103(a) over Underwood (U.S. Pat. 5,816,535) in view of Kenzie (U.S. Pat. 4,513,931) and Tillman (U.S. Pat. 6,578,885).*

(1) *Claims 1 and 6-13*

This rejection is traversed for the following reasons.

The primary reference, Underwood, discloses a system for releasing a cargo extraction parachute if the cargo attached to the parachute becomes jammed within the cargo compartment. (Col.1, lines 6-9.) Referring to FIG. 1, the extraction parachute 32A includes an attachment line 34A that is releasably connected to an extraction force transfer coupling 36A. (Col.4, lines 29-32.) Referring to FIG. 2, the end of the attachment line 34A is in the form of a loop 44 that is wrapped about a pin 38. (Col.4, lines 39-41.) An electrically initiated explosively actuated line cutter 62 is mounted on the coupling 36A positioned such that, when actuated, its cutter 64 severs the looped end of the attachment line 28 freeing the extraction parachute 32A. (Col. 4, lines 55-58.)

The primary reference, taken alone, does not teach the invention recited in the claims. Respecting base claim 1, for example, Underwood does not teach either a spring- biased line cutter, or means for mechanically restricting a spring-biased line cutter from engaging and severing the extraction line, or means responsive to

a radio signal from a transmitter on the aircraft for disabling the restricting means so that the cutter is released and severs the extraction line.

It is the Examiner's position that Kenzie shows a spring-biased line cutter, means for mechanically restricting a spring-biased line cutter from engaging and severing a line, and means for disabling the restricting means so that the cutter is released and severs the line, and that it would have been obvious to substitute the same for the electrically initiated-explosively actuated line cutter in Underwood's combination of an extraction line and an electrically initiated-explosively actuated line cutter.

The secondary reference, Kenzie, discloses a device for severing a reefing line. The de-reefing cutter 22 includes a knife barrel 26. (Col. 2, line 19-21.) The knife barrel 26 has a bore 44 to receive the reefing line 20. (Col. 2, lines 34-37.) A knife 48 is slidably mounted in a slot 42 and is held in a fixed location to one side of the bore 44 by a shear pin 50 passing through the knife. (Col. 2, lines 38-40.) A piston assembly 56 is provided to drive the knife 48. (Col. 2, lines 44-46.) The piston assembly 56 includes a piston 58 and a spring 60. (Col. 2, lines 44-46.) The piston assembly 56 is held against axial movement by a number of balls 80 in a bore 78 extending diametrically through a retainer 66. (Col. 3, lines 54-59.) A release pin 82 is slidably received in the retainer 66 and has a groove 88 formed in its outer surface to permit the balls 80 to move out of the groove 76 when the groove 88 is aligned with the bore 78. (Col. 2, lines 60-68.) In operation, a timing

mechanism 112 causes the release pin 82 to move to align the groove 88 with the bore 78 so that the balls 80 move out of the groove 76, permitting the piston assembly 56 to be moved by the spring 60 toward and into contact with the head 54 of the knife 48. The pressure of the piston assembly on the head of the knife causes the shear pin 50 to break. The piston assembly then drives the knife 48 through the reefing line 20. (Col.4, lines 26-38.)

The secondary reference, Kenzie, does not remedy Underwood's deficiencies. That is to say, as far as base claim 1 is concerned, for example, the recited element of a spring-biased line cutter is not shown. Kenzie has no spring that biases his knife 48 toward anything. His knife 48 is simply held in a fixed location by a shear pin 50 passing through the knife. The recited element of means for mechanically restricting a spring-biased line cutter from engaging and severing the extraction line is not shown. Kenzie has no knife restricting means -- Kenzie's shear pin 50 does not restrict the knife 48 from engaging and severing the line. It only holds the knife 48 in a fixed location. The knife 48 is not biased towards the line. The recited element of means responsive to a radio signal from a transmitter on the aircraft for disabling the restricting means so that the cutter is released and severs the extraction line is not shown. Kenzie has no knife restricting means. Therefore, it has no means for disabling one, and certainly no radio-signal responsive means for disabling one.

It is the Examiner's further position that Tillman shows that a radio control means to control a distant actuator is well known and that it would have been obvious to have made the whole system remotely controlled.

Since the Examiner has not identified either a knife restricting means or a means for disabling it in Kenzie, even if Tillman showed that a radio control means to control a distant actuator was well known, it is still not clear how Kenzie could be modified in view of Tillman to obtain Applicant's claimed invention. Therefore, the additional citation of Tillman still fails to remedy Underwood's deficiencies.

MPEP 2143 (Basic Requirements of a Prima Facie Case of Obviousness) requires that to establish a prima facie case of obviousness, the prior art references, when combined, must teach all the claim limitations. The Examiner has not met this basic criterion since the secondary and the tertiary reference fail to remedy the deficiencies of the primary reference.

MPEP 2143 (Basic Requirements of a Prima Facie Case of Obviousness) additionally requires that to establish a prima facie case of obviousness, there must be a suggestion to combine reference teachings. This criterion has not even been addressed by the Examiner.

His justification for combining Kenzie with Underwood is that “it would have been obvious as a substitution of parts.” He is simply saying that one could substitute elements from Kenzie in Underwood. He does not explain why one of ordinary skill in the art would have made the substitution in the first place. There is no suggestion to make the combination in the references. The suggested combination of references would require a substantial reconstruction and redesign of the elements shown in Underwood as well as a change in the basic principle under which the Underwood construction was designed to operate. Underwood teaches explosive actuation of his cutter, whereas the claimed invention requires no explosives. This is a hindsight reconstruction of Appellants’ invention.

Compare In re Ratti, 123 USPQ 349, 352 (CCPA 1959).

His justification for modifying the foregoing proposed combination of references with Tillman is that the modification is well known and thus obvious. The CCPA and the CAFC have rejected this argument. Legal conclusions as to obviousness cannot be based on such general observations. They must be based on all of the facts of record. *See In re Wagner*, 152 USPQ 552, 558 (CCPA 1967)(rejecting the decision of the Board that “the modification of a compound by the addition of one or more methyl groups is well known and thus obvious”).

It is respectfully submitted that the rejection of claims 1 and 6-13 under 35 U.S.C. §103 is based upon hindsight using the teachings of appellants’ own disclosure and finds no basis in the prior art cited against this application.

8. *Summary*

For the foregoing reasons, it is submitted that the Examiner's rejection of claims 1 and 6-13 was erroneous, and reversal of his decision is respectfully requested.

Respectfully submitted,

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9. *Claims Appendix*

Claim 1 (previously presented): A device for severing an extraction line connected between a cargo load and an extraction parachute when the cargo load fails to eject from an aircraft, the device comprising:

- a cutter spaced from and spring-biased in the direction of the extraction line;
- a housing for the cutter;
- means for mechanically restricting the cutter from engaging and severing the extraction line; and

- means responsive to a radio signal from a transmitter on the aircraft for disabling the restricting means so that the cutter is released and severs the extraction line.

Claim 2 (currently amended): A device for severing an extraction line connected between a cargo load and an extraction parachute when the cargo load fails to eject from an aircraft, the device comprising:

- a cutter spaced from and spring-biased in the direction of the extraction line;
- a housing for the cutter;
- means for mechanically restricting the cutter from engaging and severing the extraction line; and

- means responsive to a radio signal from a transmitter on the aircraft for disabling the restricting means so that the cutter is released and severs the extraction line,

- wherein the restricting means includes a pivotable trip lever positioned in the way of the cutter.

Claim 3 (previously presented): The device recited in claim 2 wherein the disabling means includes:

an activatable solenoid connected to the trip lever for pivoting the trip lever out of the way of the cutter.

Claim 4 (previously presented): The device recited in claim 3 wherein the disabling means includes:

a radio receiver in circuit with the solenoid and responsive to the radio signal for activating the solenoid.

Claim 5 (previously presented): The device recited in claim 4 wherein the disabling means includes:

a battery in circuit with the solenoid for powering the solenoid.

Claim 6 (previously presented): The device recited in claim 1 wherein the housing includes an upper plate and a lower plate, the lower plate being machined to form pockets for the cutter, restricting means and disabling means to be mounted in.

Claim 7 (previously presented): The device recited in claim 6 wherein the upper plate is machined to form mounting and guiding slots for the cutter.

Claim 8 (previously presented): The device recited in claim 7 wherein the housing includes a pair of identical outer plates having a plurality of weight-reducing holes.

Claim 9 (previously presented): The device recited in claim 8 wherein the housing includes a plurality of spacers for spacing the upper and lower plates.

Claim 10 (previously presented): The device recited in claim 9 wherein the housing includes means for clamping the outer plates and the spaced apart upper and lower plates together.

Claim 11 (previously presented): The device recited in claim 10 wherein the clamping means includes a plurality of bolts and nuts, the bolts passing through the spacers and the plates.

Claim 12 (previously presented): The device recited in claim 11 wherein the upper and lower plates are made from aluminum.

Claim 13 (previously presented): The device recited in claim 1 in combination with an extraction line connected between an extraction parachute and a cargo load.

Claim 14 (previously presented): A device for severing an extraction line connected between a cargo load and an extraction parachute when the cargo load fails to eject from an aircraft, the device comprising:

- a cutter spaced from and spring-biased in the direction of the extraction line;
- a pivotable trip lever positioned in the way of the cutter for mechanically restricting the cutter from engaging and severing the extraction line;
- an activatable solenoid connected to the trip lever for pivoting the trip lever out of the way of the cutter so that the cutter is released and severs the extraction line;
- a radio receiver in circuit with the solenoid and responsive to a radio signal from a transmitter on the aircraft for activating the solenoid;
- a battery in circuit with the solenoid for powering the solenoid;
- an aluminum upper plate and an aluminum lower plate, the lower plate being machined to form pockets for the cutter, restricting means and disabling means to be mounted in, and the upper plate being machined to form mounting and guiding slots for the cutter;
- a pair of identical outer steel plates having a plurality of weight-reducing holes;

a plurality of spacers for spacing the upper and lower plates; and
a plurality of bolts and nuts for clamping the outer plates and the spaced apart
upper and lower plates together, the bolts passing through the spacers and the plates.

Claim 15 (previously presented): The device recited in claim 14 in combination with an extraction line connected between an extraction parachute and a cargo load.

Claim 16 (withdrawn): A method of severing an extraction line connected between an extraction parachute and a cargo load when the cargo load fails to eject from an aircraft, the method comprising the steps of:

spacing a cutter from the extraction line;
spring-biassing the cutter in the direction of the extraction line;
mechanically restricting the cutter with restricting means from engaging and severing the extraction line; and
disabling the restricting means in response to a radio signal from a transmitter on the aircraft so that the cutter is released and severs the extraction line.

Claim 17 (withdrawn): The method recited in claim 16 wherein the restricting step includes:

positioning a pivotable trip lever in the way of the cutter.

Claim 18 (withdrawn): The method recited in claim 17 wherein the disabling step includes:

transmitting a radio signal from a transmitter on the aircraft.

Claim 19 (withdrawn): The method recited in claim 18 wherein the disabling step includes:

pivoting the trip lever out of the way of the cutter.

Claim 20 (withdrawn): The method recited in claim 19 wherein the disabling step includes:

activating a solenoid connected to the trip lever.

10. *Evidence Appendix*

None.

11. *Related Proceedings Appendix*

None